CLAIMS:

1. An electronic device comprising:

- a substrate of a semiconductor material having a first and a second opposite side, which is provided with a first through-hole extending from the first to the second side, the substrate being provided with a first electrical element on its first side;

- an active device having a coupling surface provided with connection pads, which device is present in the first through-hole of the substrate with its coupling surface on the first side of the substrate,

- a thin film interconnect structure being provided on the first side of the substrate extending over the first through-hole and interconnecting the active device with the electrical element, the interconnect structure comprising connection faces corresponding to the connection pads,

- a heat sink is present on the second side of the substrate extending over the first through-hole and at least part of the substrate, and

- bond pads for connection to an external system,

characterized in that the active device is made to process signals of a first frequency, and the first electrical element is part of a transformer for transforming the signals of the first frequency to a second, lower frequency and/or vice versa, so that in operation the bond pads transmit signals at the second frequency and that the heat sink operates as a ground plane.

2. An electronic device as claimed in Claim 1, characterized in that wireless coupling means are present for transmission of signals at the first frequency to and/or from an external system.

3. An electronic device as claimed in Claim 2, wherein the transformer comprises multiplexers and demultiplexers and the signal of the second frequency is a low-frequency signal.

4. An electronic device as claimed in Claim 2, wherein the wireless coupling means include a dipolar antenna and signals are transmitted from the dipolar antenna to one

or more active devices as differential signals without a transformation into single-ended format.

5. An electronic device as claimed in Claim 2, further comprising an impedance matching circuit that is embodied as a second active device at least partially, which second active device is present in a second through-hole in the substrate.

6. An electronic device as claimed in Claim 5, wherein the second active device comprises a microelectromechanical system (MEMS) element.

7. An electronic device as claimed in Claim 1, wherein the substrate of semiconductor material is a high-ohmic silicon substrate.

8. An electronic device as claimed in claim 1, wherein a vertical interconnect extends from the interconnect structure through the substrate to the ground plane.

9. A device as claimed in claim 1, comprising means for signal transmission and amplification in at least two frequency bands.

10. A device as claimed in claim 2, wherein the wireless coupling means comprise an opto-electronic semiconductor element enabling a transformation of an optical signal into an electric signal.

11. A device as claimed in claim 10, further comprising an antenna.

12. An audio and video transmission system comprising the device as claimed in any of the claims 1-11.

13. Use of the electronic device as claimed in any of the claims 1-11 for transmission and amplification of a signal at a frequency of at least 2 GHz.